	Type	L #	Hits	Search Text	DBs	Time Stamp
1	BRS	L1	1220943	interconnect$4 or plug$4 or trench$4 or damascene	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/18 10:22
2	BRS	L2	2166996	tungsten or W or (tungsten adj nitride) or "WN.sub.?" or (tungsten adj silicon adj nitride) or "WSiN.sub.?"	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/18 13:48
3	BRS	L3	3433033	plat$4 or electroplat$4 or ECD or (electro$6 adj copper adj deposit$6)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/18 10:25
4	BRS	L4	117594	1 and 2 and 3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/18 10:26
5	BRS	L5	3751	1 same 2 same 3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/18 10:57

	Type	L #	Hits	Search Text	DBs	Tim Stamp
6	BRS	L6	516239	(2 not seed$3) and 3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/18 10:29
7	BRS	L7	3210	(2 not seed$3) and 5	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/18 10:29
8	BRS	L8	3093668	need or redundant or eliminat$4 or obviat$4 or superfuous$4 or unneccessary$4	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/18 10:35
9	BRS	L9	2040	7 and 8	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/18 10:35
10	BRS	L10	271	9 and damascene	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/18 10:36

	Type	L #	Hits	Search Text	DBs	Time Stamp
11	BRS	L11	385	1 near8 2 near8 3	USPAT; US-PG PUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/18 10:58
12	BRS	L12	6065	barrier near2 (layer or film) with 2	USPAT; US-PG PUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/18 13:50
13	BRS	L13	1470	12 with 1	USPAT; US-PG PUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/18 13:50
14	BRS	L14	59	13 with 3	USPAT; US-PG PUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/18 13:51

	Type	L #	Hits	Search Text	DBs	Time Stamp
1	BRS	L1	1220943	interconnect$4 or plug$4 or trench$4 or damascene	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/18 17:18
2	BRS	L2	2166996	tungsten or W or (tungsten adj nitride) or "WN.sub.?" or (tungsten adj silicon adj nitride) or "WSiN.sub.?"	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/18 17:18
3	BRS	L3	3433033	plat$4 or electroplat$4 or ECD or (electro$6 adj copper adj deposit$6)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/18 17:18
4	BRS	L4	117594	(interconnect$4 or plug$4 or trench$4 or damascene) and (tungsten or W or (tungsten adj nitride) or "WN.sub.?" or (tungsten adj silicon adj nitride) or "WSiN.sub.?") and (plat$4 or electroplat$4 or ECD or (electro$6 adj copper adj deposit$6))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/18 17:18
5	BRS	L5	3751	(interconnect$4 or plug$4 or trench$4 or damascene) same (tungsten or W or (tungsten adj nitride) or "WN.sub.?" or (tungsten adj silicon adj nitride) or "WSiN.sub.?") same (plat$4 or electroplat$4 or ECD or (electro$6 adj copper adj deposit$6))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/18 17:18

	Type	L #	Hits	Search Text	DBs	Time Stamp
6	BRS	L6	516239	((tungsten or W or (tungsten adj nitride) or "WN.sub.?" or (tungsten adj silicon adj nitride) or "WSiN.sub.?") not seed$3) and (plat$4 or electroplat$4 or ECD or (electro$6 adj copper adj deposit$6))	USPAT; US-PG PUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/18 17:18
7	BRS	L7	3210	((tungsten or W or (tungsten adj nitride) or "WN.sub.?" or (tungsten adj silicon adj nitride) or "WSiN.sub.?") not seed$3) and ((interconnect$4 or plug$4 or trench$4 or damascene) same (tungsten or W or (tungsten adj nitride) or "WN.sub.?" or (tungsten adj silicon adj nitride) or "WSiN.sub.?") same (plat$4 or electroplat$4 or ECD or (electro$6 adj copper adj deposit$6)))	USPAT; US-PG PUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/18 17:18
8	BRS	L8	3093668	need or redundant or eliminat$4 or obviat$4 or superfuous$4 or unneccessary$4	USPAT; US-PG PUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/18 17:19

	Typ	L #	Hits	Search Text	DBs	Tim Stamp
9	BRS	L9	2040	(((tungsten or W or (tungsten adj nitride) or "WN.sub.?" or (tungsten adj silicon adj nitride) or "WSiN.sub.?") not seed$3) and ((interconnect$4 or plug$4 or trench$4 or damascene) same (tungsten or W or (tungsten adj nitride) or "WN.sub.?" or (tungsten adj silicon adj nitride) or "WSiN.sub.?") same (plat$4 or electroplat$4 or ECD or (electro$6 adj copper adj deposit$6)))) and (need or redundant or eliminat$4 or obviat$4 or superfuous$4 or unneccessary$4)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/18 17:19
10	BRS	L11	385	(interconnect$4 or plug$4 or trench$4 or damascene) near8 (tungsten or W or (tungsten adj nitride) or "WN.sub.?" or (tungsten adj silicon adj nitride) or "WSiN.sub.?") near8 (plat$4 or electroplat$4 or ECD or (electro$6 adj copper adj deposit$6))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/18 17:19
11	BRS	L12	6065	barrier near2 (layer or film) with (tungsten or W or (tungsten adj nitride) or "WN.sub.?" or (tungsten adj silicon adj nitride) or "WSiN.sub.?")	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/18 17:19
12	BRS	L13	1470	(barrier near2 (layer or film) with (tungsten or W or (tungsten adj nitride) or "WN.sub.?" or (tungsten adj silicon adj nitride) or "WSiN.sub.?")) with (interconnect$4 or plug$4 or trench$4 or damascene)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/18 17:19

	Type	L #	Hits	Search Text	DBs	Time Stamp
13	BRS	L10	271	(((tungsten or W or (tungsten adj nitride) or "WN.sub.?" or (tungsten adj silicon adj nitride) or "WSiN.sub.?") not seed$3) and ((interconnect$4 or plug$4 or trench$4 or damascene) same (tungsten or W or (tungsten adj nitride) or "WN.sub.?" or (tungsten adj silicon adj nitride) or "WSiN.sub.?") same (plat$4 or electroplat$4 or ECD or (electro$6 adj copper adj deposit$6)))) and (need or redundant or eliminat$4 or obviat$4 or superfuous$4 or unneccessary$4)) and damascene	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/18 17:19
14	BRS	L14	59	((barrier near2 (layer or film) with (tungsten or W or (tungsten adj nitride) or "WN.sub.?" or (tungsten adj silicon adj nitride) or "WSiN.sub.?")) with (interconnect$4 or plug$4 or trench$4 or damascene)) with (plat$4 or electroplat$4 or ECD or (electro$6 adj copper adj deposit$6))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/18 17:19

	Type	L #	Hits	Search Text	DBs	Time Stamp
1	BRS	L1	206390	electrolyte$3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 11:42
2	BRS	L2	105947	electrochem$6	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 11:44
3	BRS	L3	29566	1 same 2	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 11:44
4	BRS	L4	8647	damascene$3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 11:43
5	BRS	L5	2170613	W or tungsten or WN or WsiN or "WN.sub.?" or "WSiN.sub.?"	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 11:44

	Type	L #	Hits	Search Text	DBs	Tim Stamp
6	BRS	L6	821	3 same 5	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 11:44
7	BRS	L7	16	6 and 4	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 11:44
8	BRS	L8	16489	1 near8 2	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 11:44
9	BRS	L9	2687	electrochem$6 near4 reduc$6 near4 oxid$8	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 11:46
10	BRS	L10	889	1 same 9	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 11:45

	Type	L #	Hits	Search Text	DBs	Time Stamp
11	BRS	L11	20	10 same 5	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 11:46
12	BRS	L12	3929	electrochem$6 near8 reduc$6 near8 oxid$8	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 11:46
13	BRS	L13	114	12 same 5	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 11:47

	Type	L #	Hits	Search Text	DBs	Time Stamp
1	BRS	L11	206390	electrolyte$3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 13:49
2	BRS	L12	105947	electrochem$6	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 13:56
3	BRS	L13	29566	electrolyte$3 same electrochem$6	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 13:34
4	BRS	L14	8647	damascene$3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 13:31
5	BRS	L15	2170613	W or tungsten or WN or WsiN or "WN.sub.?" or "WSiN.sub.?"	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 13:32

	Type	L #	Hits	Search Text	DBs	Time Stamp
6	BRS	L16	821	(electrolyte$3 same electrochem$6) same (W or tungsten or WN or WSiN or "WN.sub.?" or "WSiN.sub.?")	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 13:31
7	BRS	L17	16	((electrolyte$3 same electrochem$6) same (W or tungsten or WN or WSiN or "WN.sub.?" or "WSiN.sub.?")) and damascene$3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 13:31
8	BRS	L18	16489	electrolyte$3 near8 electrochem$6	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 13:31
9	BRS	L19	2687	electrochem$6 near4 reduc$6 near4 oxid$8	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 13:44
10	BRS	L20	889	electrolyte$3 same (electrochem$6 near4 reduc$6 near4 oxid$8)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 13:31

	Type	L #	Hits	Search Text	DBs	Time Stamp
11	BRS	L21	20	(electrolyte$3 same (electrochem$6 near4 reduc$6 near4 oxid$8)) same (W or tungsten or WN or WsiN or "WN.sub.?" or "WSiN.sub.?")	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 13:31
12	BRS	L22	3929	electrochem$6 near8 reduc$6 near8 oxid$8	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 13:51
13	BRS	L23	114	(electrochem$6 near8 reduc$6 near8 oxid$8) same (W or tungsten or WN or WsiN or "WN.sub.?" or "WSiN.sub.?")	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 13:32
14	BRS	L24	2170613	W or tungsten or WN or WsiN or "WN.sub.?" or "WSiN.sub.?" or (tungsten adj nitride) or (tungsten adj silicon adj nitride)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 13:33
15	BRS	L25	84	19 same 24	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 13:34

	Type	L #	Hits	Search Text	DBs	Time Stamp
16	BRS	L26	114	22 same 24	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 13:34
17	BRS	L28	25	26 same 11	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 13:38
18	BRS	L29	89	26 not 28	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 13:38
19	BRS	L30	0	29 and 14	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 13:38
20	BRS	L31	22707	11 with 12	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 13:39

	Type	L #	Hits	Search Text	DBs	Time Stamp
21	BRS	L32	217	31 with 24	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 13:39
22	BRS	L33	1221987	interconnect$4 or plug$4 or trench$4 or damascene$3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 13:40
23	BRS	L34	35	32 and 33	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 13:40
24	BRS	L35	2	19 with 11 with 33	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 13:46
25	BRS	L36	5	19 with 11 with 24	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 13:48

	Typ	L #	Hits	Search Text	DBs	Time Stamp
26	BRS	L37	1202	11 same 22	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 13:49
27	BRS	L38	25	37 same 24	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 13:50
28	BRS	L39	3	38 and 33	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 13:50
29	BRS	L40	9700	electrochem$6 same reduc$6 same oxid$8	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 13:51
30	BRS	L41	3370	11 same 40	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/20 13:52

	Type	L #	Hits	Search Text	DBs	Time Stamp
31	BRS	L42	72	41 same 33	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2003/11/20 13:52
32	BRS	L43	113	41 same 24	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2003/11/20 13:52
33	BRS	L44	34	43 and 33	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2003/11/20 13:55
34	BRS	L45	31	12 near8 33 near8 11 near8 oxid$8	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2003/11/20 13:56

chemical-interdiffusion; conformal-coatings; copper; current-density; diffusion-barriers; electric-resistance; electroplating; integrated-circuit-interconnections; integrated-circuit-metallisation.

Keyw rds

sheet resistance effects; **electroplating;** copper; **seedless** barrier films; metal resistance controlled plating current distribution; circular wafers; uniform metal film electro deposition; resistive film; copper plating solutions; uniform film deposition; Ta barrier layers; resistive metal barrier layers; plating current density; uniformity characterization; dimensionless polarization parameter; current density; chemical properties; physical properties; Cu plating; plating exchange current density; copper concentration; plating bath; uniform conformal conduction layer; electro deposition; bulk copper film plating rate; 500 angstrom; 200 mm; Cu Ta; Cu.

Classification codes

B2550F	(Metallisation and interconnection technology).
B0520J	(Deposition from liquid phases).
B2570	(Semiconductor integrated circuits).
B2530D	(Semiconductor-metal interfaces).

Chemical indexing

Cu-Ta int, Cu int, Ta int, Cu el, Ta el; Cu int, Cu el.

Numerical indexing

size: 5.0E-08 m, 2.0E-01 m.

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